

### **ABSTRACT OF THE DISCLOSURE**

A method for realizing, in a fiber amplifier with three stages of amplifiers, automatic gain control in which a constant gain is obtained when channels are varied, and automatic level control in which a constant output per channel is obtained when a light power is varied because of variations in span loss. A light power or another light power of a specific wavelength is monitored to determine when variations in these light powers take place, current values of pump laser diodes appropriate for an input is read from a lookup table, and pump laser diodes are driven. During this operation, a pump power of the first stage amplifier is constantly maintained, and those of the second or third stage amplifier are controlled.